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Dartmouth College · *Environmental Studies*
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8 February 1989

Dr. J. Margaret O'Brien
Associate Provost
Middlebury College
Middlebury, VT 05753

Dear Maggie:

We begin by thanking you and Professor Steve Trombulak for arranging such an interesting day at Middlebury. We hope this report will be of use to all of you; we can assure you that by observing and talking about your program, all three of us gained new insights into our own programs.

Perhaps a brief statement of our own points of view regarding Environmental Studies in the liberal arts college would be useful at this point, if for no other reason than to help you calibrate our observations about its future at Middlebury:

We believe that studies of the environment, broadly interpreted, have passed through an exploratory period which began in the early 1970s. Such studies have now emerged on many campuses as an important interdisciplinary perspective for student and faculty interests, and thus as a proper part of the curriculum. Many of our institutions experienced doubling of enrollments in introductory environmental courses over the past few years, as well as significant increases in students majoring in environmental studies.

We believe that this new wave of environmental concern in academia will continue as issues of resource scarcities, of population growth and of concern for global environmental degradation move ever higher on the agendas of nations. Indeed, the report of the Bruntland Commission gave credibility to the proposition that national security itself will increasingly be framed in environmental terms and decreasingly in military terms. Seen in that perspective, it is clear to us that treatment of environmental science and policy issues should be considered as a significant part of liberal education. Such studies will not be limited to a single disciplinary area; natural science, social science, and humanistic studies must all be evident in the environmental studies curriculum.

Finally, however, we would not want to give the impression that environmental studies is anywhere close to being a well-defined discipline with an established consensus regarding its theoretical content. There is certainly no single way of understanding this complex interdiscipline, and we look forward to seeing Middlebury's contribution to the national educational dialogue.

This report comments on the Curriculum, the Leadership, and the Institutional Role of Environmental Studies, as we saw them during our busy and fragmentary visit to the campus. We include suggestions for your consideration along the way, and end with a more general Summary.

Curriculum

1. Both students and faculty reported that Environmental Studies had, in earlier years, generally been regarded as having limited rigor. There seems no doubt but that the current program has outgrown that image completely. Faculty, with a long memory, understandably regard this with some surprise, whereas students accept it as a fact of life. Indeed, the students were generally very proud of the image of rigor and discipline of the Environmental Studies major.

2. Students, and to some extent faculty, expressed reservations regarding the overly complicated structure of the various ways of majoring in Environmental Studies in coordination with departmental majors. What probably began as an individualized approach to match an environmental studies major to one or two disciplines has now grown into a very complicated set of special arrangements. We were given the impression that requirements were perceived to be uneven on occasion, and there seemed to be problems meeting highly specific requirements in some cases where, for example, key courses in some departments were not taught every year. Several students and faculty suggested that perhaps an independent major, or more likely a double major, should be considered.

3. Students and faculty expressed the view--in many different ways--that it was time for the program to move towards greater involvement of the social sciences and the humanities. For some this was a statement aimed at moving away from the program's historical identification with biological sciences, but more frequently it was a statement regarding the broad scope of the environmental issues themselves.

   Environmental studies education can be viewed from two extremes: on the one hand it can be seen as an applied natural science, somewhat like engineering; at the other extreme, it becomes an area of societal concern that engages ethical and policy considerations, as well as natural science principles. If our view of Environmental Studies as an important component of liberal arts education is correct, the multidisciplinary point of view certainly applies to Middlebury, and curricular development should be viewed in that light.

   In our experience, the scientific basis of environmental studies frequently cannot be taught as an end in itself. We find that students interested in the environment as a part of liberal education tend to focus on the policy aspects of environmental problems. The challenge for the College, then, is to be sure that the natural science principles are adequately stressed and well-taught, even though science is more of a means than an end for most students.

Suggestions:

a) Find a way to offer several dedicated environmental studies courses. The introductory level course(s) should get first priority, since you already have the ES 401 project course.

b) Consider a restudy of the major. One option would involve simplifying the rules by which environmental studies can be combined with existing majors. A second, and not necessarily exclusive, option would be to consider establishment of a free standing major or a double major.

Leadership

1. Professor Trombulak has done an outstanding job of establishing a new identity for Environmental Studies at Middlebury which carries with it a high level of academic respectability and student interest. We found that his accomplishments were highly regarded by students and faculty alike. His enthusiasm and dedication have been Middlebury's great resource in positioning the institution to be ready for the next phase in the development of an environmental studies curriculum.

2. We gained the clear impression from a variety of signals that this phase of single-handed restructuring was now drawing to an end. Professor Trombulak has his own research and other teaching obligations to tend to--and most specifically, he is due to take a sabbatical leave soon. Students frequently raised the issue of the need for new courses in the context of their felt need for expanded faculty involvement in the program. Without exception, the faculty we spoke with expressed the willingness to become more involved with the program. This ranged from a willingness to generate a departmental commitment, to a personal interest in teaching. Significantly, these faculty included senior faculty in the humanities and social sciences as well as natural scientists. But along with these expressions of interest, we thought we detected uncertainty about just how to go about getting involved.

3. We got some mixed signals regarding the role of the existing Faculty Advisory Committee. Professor Trombulak found them generally supportive, but not particularly involved--as measured, for example, by their attendance at meetings. From at least some of the faculty we got the impression that the Committee felt underutilized. They seemed to feel informed, but not involved and were not quite clear about how to become involved. They did not seem to feel they were in the loop of the decisionmaking process.

Suggestions:

a) Consider ways of distributing responsibility and thereby generating active participation of more faculty--not just junior faculty but department chairmen and other influential senior faculty. We believe that establishment of appropriate reward structures for participation in Environmental Studies will be necessary to accomplish this, but other strategies will be needed as well, such as continuation of your current laudable policy of influencing some departmental recruiting to support Environmental Studies.

b) The selection of Steve's replacement while he is on sabbatical could be very important. The program cannot continue on one individual's enthusiasm. Is there a way to signal a broadened disciplinary base with the next appointment, while at the same time meeting all the practical considerations of experience and continuity?

c) We suggest that it is very important that identifiable faculty resources be committed to Environmental Studies. At very least this means released time and departmental compensation for individuals participating in Environmental Studies. Beyond that, it would be highly desirable to establish one or more new faculty positions primarily focused in Environmental Studies. The need is there already, and certainly cannot be ignored if new courses are to be offered.

Institutional Role

1. We encountered a universal feeling among faculty that the administration provided inadequate support for the program. The term "overload" was used frequently, and it seemed to signify more than simply the lack of teaching load adjustment for participation in the program. It contained as well the frustration over an operating budget perceived to be quite inadequate to support any kind of organized department-like activities, and the absence of an identifiable location or office where students could get information, congregate or simply identify as academic home base.

2. At the same time, there was faculty recognition and appreciation that administrative efforts have been made to influence recruiting in at least one department so as to support Environmental Studies. Similarly, the formation of this visiting committee was perceived as a supportive step.

Suggestions:

a) Establishment of a formal infrastructure for the program would be a highly important symbolic as well as practical step. A more adequate budget, a home office and reading room, identifiable office personnel support, and removal of the "overload" image would be enormously important.

Summary and Conclusions

1. The components are in place for Middlebury to take a strong position in the emerging role of Environmental Studies in liberal arts education. Your local environment, the outdoor orientation of your student body, as well as the long history of Environmental Studies at Middlebury (a senior program of the New England group) are all in your favor. The recent momentum of renewal and vigor in the program provided by Professor Trombulak auger well for continued growth.

2. It is our assessment that it is quite crucial that you take steps to prepare for environmental education for the 90's. The renewed student and faculty interest of recent years at Middlebury may give the false impression that things are in good shape. We think that is illusory. The entire structure of the program, from faculty to physical facilities, is too lean to do justice to the subject and to satisfy the expectations of the growing student interest during the next decade. Unless Middlebury moves to take the next essential steps, you run the risk of falling behind the competition of comparable first class institutions.

3. We have no recipe for just how Middlebury should fashion its answer to these challenges. Perhaps one way of identifying the optimum route would be to ask the Environmental Studies Faculty Advisory Committee to develop a master plan for the next decade of Environmental Studies at Middlebury. Perhaps our review could be taken as a starting point for such a study, but the ten-year perspective should be paramount, and everyone should recognize that it will have to be changed along the way. This sort of study would give both faculty and administration a tangible model to talk about and possibly a joint goal to work towards. The procedure itself would have the benefit of involving the Faculty Advisory Committee in an important and tangible process, while at the same time generating faculty participation and consensus.

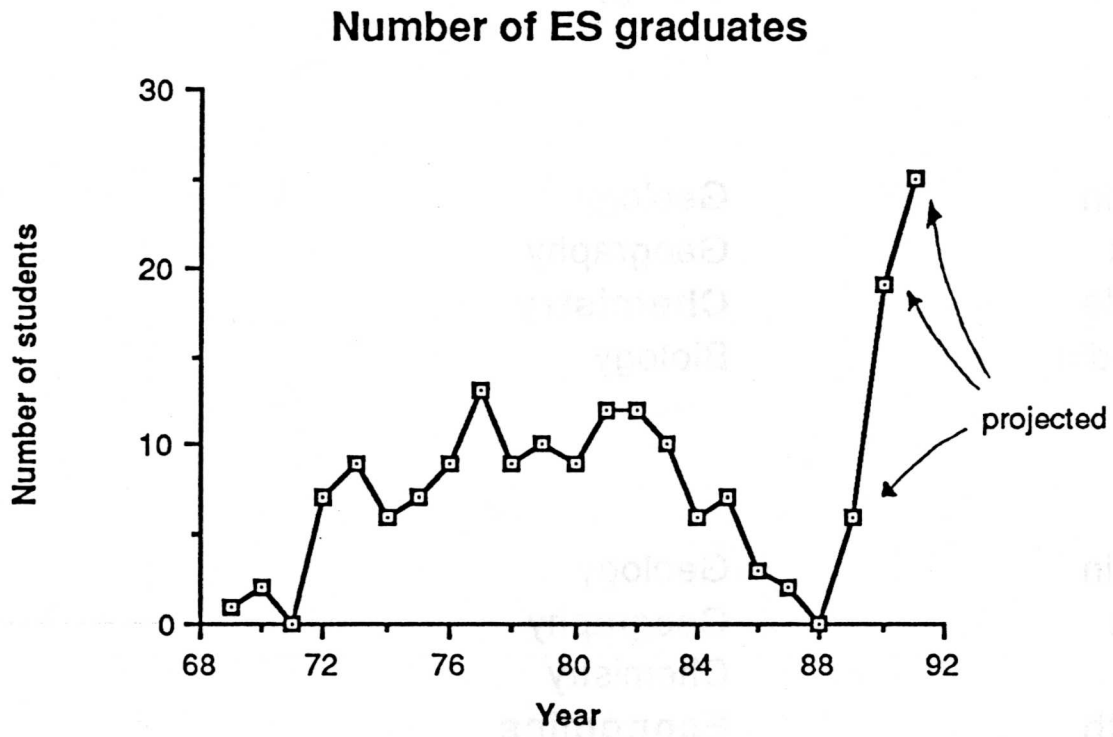
James F. Hornig
Environmental Studies Program, Dartmouth

Nan Jenks-Jay
Center for Environmental Studies, Williams

Carl H. Reidel
Environmental Program, University of Vermont

JFH:akb

Figure 1



The projections for 1989-91 are based on the current number of declared majors in each of those classes

ATTACHMENT 1: Faculty with the Environmental Studies Program. Beginning with the list for 1974-75, faculty new to the Program are shown in boldface.

1968-1974:

Brewster Baldwin	Geology
J. Rowland Illick	Geography
Howard E. Woodin	Biology

1974-1975:

Brewster Baldwin	Geology
J. Rowland Illick	Geography
E. Lewis Poole	**Chemistry**
Howard E. Woodin	Biology

1975-1980:

Brewster Baldwin	Geology
J. Rowland Illick	Geography
E. Lewis Poole	Chemistry
David K. Smith	**Economics**
Howard E. Woodin	Biology

1980-1985:

Brewster Baldwin	Geology
J. Rowland Illick	Geography
E. Lewis Poole	Chemistry
David K. Smith	Economics
Richard Wolfson	**Physics**
Howard E. Woodin	Biology

1985-1986:

Brewster Baldwin	Geology
Robert Churchill	**Geography**
J. Rowland Illick	Geography
E. Lewis Poole	Chemistry

David K. Smith	Economics

1986-1987:

David Andrews	**Sociology/Anthropology**
Richard Arthur	**Philosophy**
Brewster Baldwin	Geology
Robert Churchill	Geography
Raymond Coish	**Geology**
Lucy Harding	**Geology**
J. Rowland Illick	Geography
Timi Mayer	**Geography**
Victor Nuovo	**Philosophy**
E. Lewis Poole	Chemistry
Burke Rochford	**Sociology/Anthropology**
Sheldon Sax	**Economics**
Sallie Sheldon	**Biology**
David K. Smith	Economics
Stephen Trombulak	**Biology**

1987-1988:

David Andrews	Sociology/Anthropology
Richard Arthur	Philosophy
Brewster Baldwin	Geology
Robert Churchill	Geography
Raymond Coish	Geology
John Elder	**English**
Lucy Harding	Geology
Timi Mayer	Geography
Victor Nuovo	Philosophy
E. Lewis Poole	Chemistry
Burke Rochford	Sociology/Anthropology
Sheldon Sax	Economics
Jack Schmidt	**Geology and Geography**
Sallie Sheldon	Biology
David K. Smith	Economics
Stephen Trombulak	Biology

1988-1989:

David Andrews	Sociology/Anthropology
Richard Arthur	Philosophy
Brewster Baldwin	Geology
Robert Churchill	Geography
Raymond Coish	Geology
John Elder	English
Lucy Harding	Geology
Neal Leary	**Economics**
Timi Mayer	Geography
Victor Nuovo	Philosophy
Burke Rochford	Sociology/Anthropology
Jack Schmidt	Geology and Geography
Sallie Sheldon	Biology
Stephen Trombulak	Biology

THE PROGRAM IN ENVIRONMENTAL STUDIES

The program in Environmental Studies provides a diverse interdisciplinary undergraduate major for students in graduate programs in Environmental Studies or Environmental Sciences. Because the major includes significant work in two divisions, students majoring in Environmental Studies are not required to take a concentration. The major may be supplemented by a series of optional foci which provide more flexibility to the student in the pursuit of career goals which do not include graduate studies in Environmental Studies or Environmental Sciences.

The major includes BI 190 (Ecology) or NE 320 (Northern Ecosystems), BI 311 (Ecosystems Analysis), BI 411 (Seminar in Ecology), CH 103 (Fundamentals of Chemistry I), CH 104 (Fundamentals of Chemistry II), EC 155 (Micro Economics), EC 365 (Environmental Economics) or EC 394 (Resource Economics) or NE 360 (Political Economy of Resource Management), GG 310 (Techniques of Environmental Analysis), GG 250 (Physical Earth Processes), MA 213 (Programming I) or MA 103 (Introduction to Computers), MA 112 (Mathematical Analysis I), and PS 200 (Theories and Methods of Political Analysis) of NE 152 (Public Policy in the Circumpolar North) or NE 370 (Northern Policy Studies) or PA 190 (Ethics and the Environment) or PS 104 (Introduction to American Political Processes.)

Optional foci include:

BIOLOGY	CHEMISTRY	COMPUTERS	ECONOMICS
BI 125	CH 241	MA 113	EC 210
BI 201	CH 242	MA 213	EC 355
or	CH 351	or	EC 365
BI 202	CH 412	MA 200	EC 470
or	or	MA 214	
BI 203	CH 431	MA 315	
or		or	

BIOLOGY	COMPUTERS
BI 230	MA 310,
BI 250	311
BI 216	
or	
BI 302	

GEOGRAPHY	GEOLOGY	PHYSICS
GG 211	GL 112	PH 109
or	GL 201	PH 110
GG 212	GL 252	PH 201
or	GL 381	PH 202
GG 215		PH 212
GG 320		
GG 330		
GG 411		
GG 450		

Senior Research is also possible under ES 500 (independent studies) and ES 700 (senior thesis). Those participating in the ES 700 course will be expected to make public presentations of their research and defend their theses before a committee including members of at least three departments participating in the major.

A student majoring in Environmental Studies and taking the courses of the biology focus will be eligible for certification as an ecologist by the Ecology Society of America if the student completes one semester of senior work and one year of professional work after graduation.

Students matriculating between September 1982 and September 1984 should work out their programs with the Director of the Environmental Studies Program.

ES 500 **Independent Study**
Fall, Winter, Spring

ES 700 **Senior Thesis**
Fall, Winter, Spring

THE PROGRAM IN ENVIRONMENTAL STUDIES

Professors: David Andrews (Sociology/Anthropology), Brewster Baldwin (Geology), Victor Nuovo (Philosophy), E. L. Poole (Chemistry), David Smith (Economics) *Associate Professors:* Robert Churchill (Geography), Raymond Coish (Geology) *Assistant Professors:* Lucy Harding (Geology), Sallie Sheldon (Biology), Stephen Trombulak (Biology, Director) *Visiting Assistant Professor:* Richard Arthur (Philosophy) *Visiting Instructor:* Sheldon Sax (Economics)

The field of Environmental Studies explores the relationship between humans and their environment. Such a study involves information from a variety of disciplines, including economics, natural science, political science, geography, sociology, and philosophy. The Program in Environmental Studies is designed to provide students an interdisciplinary major that focuses on the diverse facets of environmental science as well as to provide in-depth training in one or more specific disciplines. After graduation, students may continue on to graduate school in environmental science, as well as environmental law, resource economics, anthropology, or wildlife biology. Because the major includes significant work in two divisions, students majoring in Environmental Studies are not required to take a concentration.

Program Requirement: Students must select to be in either the Natural Science or the Social Science/Humanities Track of the major. Each track involves six required courses and four cognates. Additionally, each student must select a focus and an adviser within their chosen track. Courses taken within the focus that are not specified must be approved by the adviser.

Natural Science Track

Core courses:
BI 190 (General Ecology)
CH 103; 104 (Fundamentals of Chemistry I and II)
GL 112 (Environmental Geology)
MA 106 (Introduction to Statistical Science); 112 (Mathematical Analysis I)

Cognate courses (any four courses; at least two must be above the 100 level):
EC 365 (Environmental Economics); 394 (Natural Resource Management)
GG 211 (Economic Geography); 230 (Environmental Conservation; 354 (Weather and Climate)
PS 104 (American Political Processes)
PA 190 (Ethics and the Environment); 230 (Philosophy of Science)
SA 307 (Social Movement and Collective Action)

One of the following foci:
Biology: 125, 4 additional courses at the 200-300 level, 1 course at the 400 level
Chemistry: 4 courses at the 200-300 level, 2 courses at the 400 level

Geology: 3 courses at the 200-300 level, 1 course at the 400 level, and 2 units of 700

Social Science/Humanities Track

Core courses:
EC 155 (Introductory Economics); 365 (Environmental Economics) *or* 394 (Natural Resource Management)
GG 211 (Economic Geography) *or* 212 (Urban Geography); 230 (Environmental Conservation)
PA 190 (Ethics and the Environment)
PS 104 (American Political Processes) *or* 208 (U.S. Congress)

Cognate courses (any four courses; at least two must be above the 100 level):
BI 190 (General Ecology); 390 (Advanced Ecology)
CH 103 (Fundamentals of Chemistry I); 170 (Chemistry for Citizens)
GL 112 (Environmental Geology); 252 (Geomorphic Processes)
MA 103 (Introduction to Computers) *or* 213 (Computer Science I); 106 (Introduction to Statistical Science);

One of the following foci:
Economics: 150, 210, 355, 1 additional course at the 200-300 level
Geography: 100, 4 additional courses at the 200-300 level, 1 course at the 400 level
Philosophy: 180, 4 additional courses at the 200-300 level, 1 course at the 400 level
Sociology/Anthropology: 103, 190, 302, 710, 2 Area Studies courses

Senior Independent Work: Some foci require independent work in the related department during the senior year. Students with other foci may also elect to do independent work; this work may be carried out either as a one semester project (ES 500: Independent Studies) or as a two or more semester project (ES 700: Senior Thesis). Students must carry out this work under the supervision of a faculty member in the department that best characterizes the research project. Students wishing to undertake a 500 or 700 project must submit a proposal well in advance of registration for the semester when the work is to be done. Proposals must be submitted to the project adviser, the Program Director, and an additional faculty member from the track. In addition, students undertaking a Senior Thesis must make a public presentation of the research and a defense of the thesis before a committee of at least three faculty members.

Honors Program: Students with an average of B+ or better in courses required for the major may apply for Program Honors before beginning a Senior Thesis (ES 700). Honors will be given for a thesis of superior quality (B+ or better).

ES 500 **Independent Study** Fall, Winter, Spring

ES 700 **Senior Thesis** Fall, Winter, Spring

ATTACHMENT 9: Course description of ES 401

ES 401 Environmental Policy Formation Fall

Students will work together to formulate and justify policy measures that they think would be appropriate to deal with a local environmental problem. Policy recommendations will be based on research into economic, social, and environmental factors related to the problem. This course will show students how the disciplinary knowledge can be integrated in a synthetic manner and offer the experience of working as a team toward the solution of a real-world problem. Considerable field work and library research will be involved, and the final exam will consist of a public presentation and defense of student-generated policy recommendations. (Junior or senior standing.) Mr. Trombulak.

ATTACHMENT 10: Program in Environmental Studies as of September 1988

Professors: David Andrews (Sociology/Anthropology), Brewster Baldwin (Geology), John Elder (English), Victor Nuovo (Philosophy); Associate Professors: Robert Churchill (Geography), Raymond Coish (Geology); Assistant Professors: Richard Arthur (Philosophy), Timi Mayer (Geography), Burke Rochford (Sociology/Anthropology), Lucy Harding (Geology), Jack Schmidt (Geology and Geography), Sallie Sheldon (Biology), Stephen Trombulak (Biology, Director); Instructor: Neal Leary (Economics).

The field of Environmental Studies explores the relationship between humans and their environment. Such a study involves information from a variety of disciplines, including economics, natural science, political science, geography, sociology, and philosophy. The Program in Environmental Studies is designed to provide students an interdisciplinary major that focuses on the diverse facets of environmental science as well as to provide in-depth training in one or more specific disciplines. After graduation, students may continue on to graduate school in environmental science, as well as environmental law, resource economics, anthropology, or wildlife biology. Because the major includes significant work in two divisions, students majoring in Environmental Studies are not required to take a concentration.

Program Requirement: Students must select to be in either the Natural Science or the Social Science/Humanities Track of the major. Each track involves six required courses and four cognates. Additionally, each student must select a focus and an advisor within their chosen track. Courses taken within the focus that are not specified must be approved by the advisor.

Natural Science Track:

Core courses:

Biology 190 (General Ecology)
Chemistry 103; 104 (Fundamentals of Chemistry I and II)
Geology 112 (Environmental Geology)
Math 106 (Introduction to Statistical Science); 112 (Mathematical Analysis I)

Cognate courses (any four courses; at least two must be above the 100 level):

Economics 365 (Environmental Economics)
English/American Literature 113 (Visions of Nature)
Geography 210 (Geography of Development) or 211 (Economic Geography) or 212 (Urban Geography); 251 (Geomorphic Processes); 254 (Weather and Climate); 255 (Surface Water Resources and Development); 260 (Environmental Conservation)
Political Science 103 (Comparative Politics) or 104 (American Political Processes) or 208 (U.S. Congress)
Philosophy 190 (Ethics and the Environment); 230 (Philosophy of Science)
Sociology/Anthropology 307 (Social Movement and Collective Action)

1 of the following foci:

Biology: 125, 4 additional courses at the 200-300 level, 1 course at the 400 level
Chemistry: 4 courses at the 200-300 level, 2 course at the 400 level
Geology: 3 courses at the 200-300 level, 1 course at the 400 level, 2 units of 700

Social Science/Humanities Track:

Core courses:

Economics 155 (Introductory Economics); 365 (Environmental Economics)
Geography 210 (Geography of Development) or 211 (Economic Geography) or 212 (Urban Geography); 260 (Environmental Conservation)
Philosophy 190 (Ethics and the Environment)
Political Science 103 (Comparative Politics) or 104 (American Political Processes) or 208 (U.S. Congress)

Cognate courses (any four courses; at least two must be above the 100 level)):

Biology 190 (General Ecology); 390 (Advanced Ecology)
Chemistry 103 (Fundamentals of Chemistry I)
Geology 112 (Environmental Geology); 290 (Energy Fuels and Mineral Development)
Math 103 (Introduction to Computers) or CX 213 (Computer Science I); 106 (Introduction to Statistical Science);

Northern Studies 252 (Biogeography)

1 of the following foci:

Economics: 210, 355, 1 additional course at the 200-300 level, 465, 1 additional course at the 400 level
Geography: 100, 4 additional courses at the 200-300 level, 1 course at the 400 level
Philosophy: 180, 4 additional courses at the 200-300 level, 1 course at the 400 level
Sociology/Anthropology: 103, 190, 302, 710, 2 Area Studies courses
Writing and Literature: EL 107 or 160 or 170, EL 260, EL 213, EL/AL 113, AL 202, CS 225

Senior Independent Work: Some foci require independent work in the related department during the senior year. Students with other foci may also elect to do independent work; this work may be carried out either as a one semester project (ES 500: Independent Studies) or as a two or more semester project (ES 700: Senior Thesis). Students must carry out this work under the supervision of a faculty member in the department that best characterizes the research project. Students wishing to undertake a 500 or 700 project must submit a proposal well in advance of registration for the semester when the work is to be done. Proposals must be submitted to the project advisor, the Program Director, and an additional faculty member from the track. In addition, students undertaking a Senior Thesis must make a public presentation of the research and a defense of the thesis before a committee of at least three faculty members.

Honors Program: Students with an average of B+ or better in courses required for the major may apply for Program Honors before beginning a Senior Thesis (ES 700). Honors will be given for a thesis of superior quality (B+ or better).

ES 401 Environmental Policy Formation Fall

Students will work together to formulate and justify policy measures that they think would be appropriate to deal with a local environmental problem. Policy recommendations will be based on research into economic, social, and environmental factors related to the problem. This course will show students how the disciplinary knowledge can be integrated in a synthetic manner and offer the experience of working as a team toward the solution of a real-world

problem. Considerable field work and library research will be involved, and the final exam will consist of a public presentation and defense of student-generated policy recommendations. (Junior or senior standing.) Mr. Trombulak.

ES 500 Independent Study — Fall, Winter, Spring

Budget for the Program in Environmental Studies

Stephen C. Trombulak
September 1988

Summarizing the budget history of the Program is difficult because the Program has never had its own budget and money to support the activities of ES faculty and students has come from several different sources.

1965-1986: Funds to run the Program came from three general sources. First, funds to administer the Program as a whole were borne by the Department of Biology because the Director of the Program, Dr. Howard E. Woodin, was a member of that department. These costs included a minimal amount of phone use, mailing, copying, stationary, and secretarial support. Also, a small number of environmentally-oriented journals were, for administrative purposes, included under the holdings of the Department of Biology.

Second, funds to support the individual tracks (Ecology, Geology, Chemistry, Human Ecology, Economics, and Physics) came from the related departments as part of their support of the activities of their faculty and students. Visiting seminar speakers were presumably also supported by the related departments.

Third, major equipment and research supplies came from the Vermont Wild Lands Foundation (1966-1983) or the College's Vermont Wild Lands Foundation budget (1983-1986). This was because the majority of the field activity associated with the Program was in the area of field ecology and was taking place at the High Pond Nature Reserve (see the enclosed History of The High Pond Nature Reserve for a more complete explanation).

1986-present: Budget adminstration of the Program has been removed from the Department of Biology and placed directly in the Vermont Wild Land Foundation budget. However, of the $9,300 in the 1987-88 budget, 96% went directly toward maintenance of the High Pond Field Station. Only $325 for College Travel went towards the Program. The approved budget for 1988-89 is similar (15% going directly to the Program as College Travel and Professional Services). Currently, the budget is administered by Stephen Trombulak, the Program Director, because he is also a frequent user of the High Pond Nature Reserve as part of his position in Biology. However, it is the opinion of many faculty associated with the Program that the coupling of these two areas is not a

good long-term solution; such an arrangement is inappropriate if the Program Director is someone who is not associated with the Nature Reserve.

In the past two years, the Program has also been given $500.00/year for visiting seminar speakers (see Attachment 1) and $200.00/year for discretionary spending. The discretionary money has been used in the past to support student/faculty social events to build Program identity and communication. Some journals in the area of Environmental Studies are, for administrative purposes, identified specifically with the Program (see Attachment 2 for a current list of journal holdings). However, many technical journals with environmental applications are identified with specific departments (e.g., Journal of Applied Ecology with Biology, Human Ecology with Sociology/Anthropology) and general interest magazines (e.g., Sierra, Audubon) are attached to the College's general fund.

Funds to support the Program-related activities of faculty and students come from the faculty's home departments. This includes support of teaching resources for the course ES 401. In this first year of its offering, it is being supported by the Biology Department because the instructor, Steve Trombulak, is a member of that department.

Environmental Studies 401 **Autumn 1988**
Environmental Policy Formation **Dr. Stephen C. Trombulak**

Introduction

In this course you are going to work as a group to develop a policy recommendation on how to deal with an issue that is current and for which a coherent policy has not yet been formulated. To do this you will have to collect data, interview people, and get advise on subjects that include economics, politics, natural science, and ethics. You will together decide what you need to do and how you will go about it. I will be available for consultation and advice at any time but I will not tell you what to do.

The policy that you will develop and recommend will be a recycling plan for Middlebury College. Currently, there is some recycling going on here due to the efforts of the student organization Environmental Quality. However, their efforts do not encompass the entire campus nor does it deal with the entire spectra of mass flow through the College. You will work as a group to quantify the mass flow through the College, analyze its potential for reuse or sale, recommend a policy for decreasing the non-recyclable outflow, and justifying the policy in a fashion that will convince the College's administrators and Trustees to adopt your recommendations.

In the development of your ideas you should research the history of laws and policies concerning solid waste in Addison County and Vermont in particular, as well as the rest of the nation in general.

I am available at any time for anything; you can contact me in my office (Science Center 332), over the phone at school (ext. 5439), or at home (897-8251).

Course Requirements

1. Participate in the organization of the research effort.
2. Participate in the research.
3. Participate in the preparation of a written policy document.
4. Participate in public presentations of the policy recommendation. At this time I plan for you to make two presentations. The first will be a progress report to a visiting committee of environmentalists from University of Vermont, Dartmouth College, and Williams College (10 November, 1:15

pm). The second will be a final report to a group of College administrators/Trustees (date to be arranged). During the first presentation you must be able to justify your procedures and effort to date and provide an idea of how your research is developing. In the second presentation you must convince the College to adopt your plan.

Grade

Your grade will be based on three things weighted equally. 1) The final written report and the oral presentations will be evaluated and assigned to the class as a whole. 2) Each person will at the end of the semester write a written evaluation of the quality of their work in the course and will assign to themselves a grade. 3) Each person will at the end of the semester write a written evaluation of the quality of the work done by the other people in the course with whom they worked and will assign to to them a grade.